

## **ABSTRACT**

A metallurgical process expands the grain structure in a heat sink from a fine grain to a coarse grain to improve the thermal conductivity of the heat sink. The temperature of the heat sink is raised to a level high enough to lead to a secondary re-crystallization grain growth in the metal alloy. The temperature of the heat sink is then gradually lowered to a cryogenic temperature and then immediately brought back up to ambient temperature to strengthen the material.